

Rec'd T/PTO

03 MAR 2003

10/526713

INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU03/01138

A. CLASSIFICATION OF SUBJECT MATTERInt. Cl. ⁷: A61F 2/56, 2/62, 2/70, 5/10, A61H 1/02, A63B 23/035, 23/16

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

REFER TO ELECTRONIC DATABASE BELOW

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

DWPI: & keywords: A61F/ic, A61H/ic, A61B/ic, joint, exercise, artificial, muscle and similar terms.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 00/15157 A1 (RUTGERS, THE STATE UNIVERSITY OF NEW JERSEY) 23 March 2000 See entire document.	1-26
X, Y	US 5556700 A (KANETO et al.) 17 September 1996 See entire document.	1-26
X, Y	EP 924033 A2 (KANETO et al.) 23 June 1999 See entire document.	1-26



Further documents are listed in the continuation of Box C



See patent family annex

* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent but published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search
29 October 2003Date of mailing of the international search report
5 NOV 2003

Name and mailing address of the ISA/AU

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	EP 421368 B1 (NIVAROX-FAR S.A) 12 May 1993 See figures 1-8.	1-7, 12-26 8-11
X Y	US 5103807 A (MAKARAN) 14 April 1992 See entire document.	1-7, 12-26 8-11
X Y	JP 2001-46450 A (IEDA TAKAKO) 20 February 2001 See figures 1-16.	1-7, 12-26 8-11
X Y	US 3756222 A (KETCHUM) 4 September 1973 See figures 1-11	1-5, 7 8-11
X Y	US 4246661 A (PINSON) 27 January 1981 See entire document.	1-5, 7-8, 15- 21, 24-26 9-11
A	US 4830360 A (CARR JR.) 16 May 1989 See abstract.	

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Box I Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos :
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos :
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos :
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a)

Box II Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

Refer to Supplemental Box for explanation

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:1-26

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

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Supplemental Box

(To be used when the space in any of Boxes I to VIII is not sufficient)

Continuation of Box No: II

The international application does not comply with the requirements of unity of invention because it does not relate to one invention or to a group of inventions so linked as to form a single general inventive concept. In coming to this conclusion the International Searching Authority has found that there are different inventions as follows:

1. Claims 1-24 are variously directed to a movement facilitation device for facilitating movement between first and second portions of a first object. It is considered that the use of an actuator for moving the first portion with respect to the second portion and an operating means coupled to the actuator for operating the actuator comprises a first "special technical feature".
2. Claims 25-26 are directed to an actuator capable of incremental actuation. It is considered that the use of at least one movement control means in association with one or more actuation means comprising of a shape memory material or a conducting polymer, wherein the displacement of the movement control means is achieved by change in dimension of the shape memory material or the conducting polymer comprises a second "special technical feature".
3. Claim 27 is directed to a transducer having a radiation source with one or more detectors, and a return mechanism coupled to one or more of the detectors. It is considered that the use of detectors which are capable of generating a signal dependent on an intensity of radiation incidental on the detector and wherein the distance between the radiation source and the detector is a function of the force applied on the return mechanism comprises a third "special technical feature".

Since the abovementioned groups of claims do not share any of the technical features identified, a "technical relationship" between the inventions, as defined in PCT rule 13.2 does not exist. Accordingly the international application does not relate to one invention or to a single inventive concept, a priori.

The first and second inventions can be searched together without effort which would warrant an additional fees. The third defined invention however has a different feature set and a distinct classification under the IPC. Therefore, it is considered that the because of these distinct feature set and classification, a search for the third defined invention could not be carried out without involving **significant extra effort**.

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
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This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report			Patent Family Member				
WO	0015157	AU	60430/99	US	6379393		
US	5556700	CA	2186290	WO	9526267		
EP	0924033	JP	11169393	JP	11169394		
EP	0421368	AU	63765/90	CA	2026718	FR	2652738
		JP	3133454				
US	5103807	NIL					
JP	200146450	NIL					
US	3756222	NIL					
US	4246661	NIL					
US	4830360	NIL					
END OF ANNEX							